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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/933,528	08/20/2001	Christophe Person	LXGN-00104	8324

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EXAMINER

BRUSCA, JOHN S

ART UNIT PAPER NUMBER

1631

DATE MAILED: 04/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/933,528

Applicant(s)

PERSON, CHRISTOPHE

Examiner

John S. Brusca

Art Unit

1631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,3,5-9,16,18-33 and 39 is/are pending in the application.
4a) Of the above claim(s) 39 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 2,3,5-9,16 and 18-33 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

1. The applicants are requested to refrain from supplying copies of previous Office actions with their responses because this causes unnecessary complications in scanning of documents into the application file.

2. Claim 39 is withdrawn, contrary to the status identifier for claim 39 of "Original" in the claim listing filed 02 February 2005. The status of withdrawn claim 39 was discussed in the Office action mailed 23 July 2004.

Priority

3. The priority claim to U.S. Provisional Application No. 60/227,099 is accepted in view of the amendment to the specification filed 02 February 2005.

Specification

4. The objection to the specification for lack of compliance with the sequence rules in the Office action mailed 23 July 2004 is withdrawn in view of the amendment to the specification filed 02 February 2005.

5. The objection to the specification as failing to provide proper antecedent basis for the claimed subject matter in the Office action mailed 23 July 2004 is withdrawn in view of the cancellation of claims 10-15 in the amendment filed 02 February 2005.

Claim Rejections - 35 USC § 112

6. The rejection of claim 17 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement in the Office action mailed 23 July 2004 is withdrawn in view of the cancellation of claim 17 in the amendment filed 02 February 2005.

Art Unit: 1631

7. The rejection of claims 5-16 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention in the Office action mailed 23 July 2004 is withdrawn in view of the cancellation of claims 10-15 and the amendment of claims 5-7 and 16 in the amendment filed 02 February 2005.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 2, 3, 5, 7, 8, 18-20, 27, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jurka et al. (1996).

The claims are drawn to a method of making a repeat sequence database by masking repeat sequences in a query sequence wherein the repeat sequences are in a repeat sequence database, and determining if any remaining unmatched sequences in the query sequence are repeat sequences in a repeat sequence database, and if such repeat sequences are determined in

Art Unit: 1631

the query sequence, the query repeat sequences so determined are added to a repeat sequence database. In some embodiments the right and left endpoints of the match are determined, the sequences are DNA sequences, the sequences are human sequences, the repeat sequence databases are internet accessible and on computer-readable media, and the matching of sequences are performed by a database search algorithm. In some embodiments the search algorithm is a Smith Waterman algorithm.

Jurka et al. (1996) shows in the program description on pages 119-121 a database matching program called CENSOR. CENSOR determines whether a query sequence contains repeats that match sequences in a repeat sequence database. CENSOR censors those repeat sequences so that the remaining query sequence may be matched against the database of choice without giving undesirable matches to repeat sequences that have been censored. Jurka et al. (1996) shows on page 119 that in the art the terms censor and masking are equivalent. Jurka et al. shows matching of query sequences that are DNA and determination of the right and left endpoints of the match and masked regions in figure 1. Jurka et al. (1996) shows human repetitive databases in the introduction on page 119. Jurka et al. (1996) shows computer-based repeat sequence databases throughout, and use of LOCAL, a Smith Waterman database search algorithm throughout. Jurka et al. shows on page 121 that one use of CENSOR is to allow for masking of repeated sequence followed by a second matching to a repeat sequence database using different parameters for possible identification and censoring of more distant repeats. Jurka et al. (1996) does not show addition of repeats identified by comparison of a masked query sequence to a repeat sequence database.

Art Unit: 1631

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the method of Jurka et al. (1996) by addition of newly determined repeat sequences to a repeat sequence database so that the repeat sequence database would be a more comprehensive listing of repeat sequences.

11. Claims 2, 6, 16, 19-24, 26-29, and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jurka et al. (1996) as applied to claims 2, 3, 5, 7, 8, 18-20, 27, and 30 above, and further in view of Altschul et al.

The claims are drawn to the method of claim 2 further limited to analysis of ribonucleotide sequences, sequences that encode amino acid sequences, synthetic DNA such as cDNA, repeat sequence databases accessible through the internet, use of public domain databases GenBank, dbEST, and SwissProt, use of search algorithms BLAST and FASTA, and use of scoring matrices PAM and BLOSUM.

Jurka et al. (1996) as applied to claims 2, 3, 5, 7, 8, 18-20, 27, and 30 above does not show the method of claim 2 further limited to analysis of ribonucleotide sequences, sequences that encode amino acid sequences, repeat sequence databases accessible through the internet, use of public domain databases GenBank, dbEST, and SwissProt, use of search algorithms BLAST and FASTA, and use of scoring matrices PAM and BLOSUM.

Altschul et al. reviews searching sequence databases. Altschul et al. shows searching query sequences derived from mRNA such as cDNA that encode proteins on page 119 and figures 2 and 3. Altschul et al. shows repeat sequence databases accessible through the internet used to mask query sequences on page 128. Altschul et al. shows public domain databases GenBank on page 124, SwissProt on page 127, and dbEST on page 128 (reference 60). Altschul

Art Unit: 1631

et al. shows use of BLAST and FASTA search algorithms on page 120 and use of scoring matrices PAM and BLOSUM on pages 123-124.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the method of Jurka et al. (1996) as applied to claims 2, 3, 5, 7, 8, 18-20, 27, and 30 above by use of analysis of ribonucleotide sequences, sequences that encode amino acid sequences, repeat sequence databases accessible through the internet, use of public domain databases GenBank, dbEST, and SwissProt, use of search algorithms BLAST and FASTA, and use of scoring matrices PAM and BLOSUM because Altschul et al. shows use of all of those features in the context of searching sequence databases with query sequences whose repeat sequences have been masked.

12. Claims 2, and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jurka et al. (1996) as applied to claims 2, 3, 5, 7, 8, 18-20, 27, and 30 above, and further in view of Jurka (1998).

The claims are drawn to the method of claim 2 utilizing sequences from mice.

Jurka (1998) reviews repeat sequences from a variety of organisms. Jurka (1998) points to mouse repeat sequences on page 334 and table 1.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the method of Jurka et al. (1996) as applied to claims 2, 3, 5, 7, 8, 18-20, 27, and 30 above by use of repeat sequences from a variety of organisms so that corresponding query sequences from the organisms could be analyzed and masked.

Art Unit: 1631

13. Claims 2, 22, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jurka et al. (1996) as applied to claims 2, 3, 5, 7, 8, 18-20, 27, and 30 above, and further in view of Sohocki et al.

The claims are drawn to the method of claim 2 further limited to use of a TIGR database.

Jurka et al. (1996) as applied to claims 2, 3, 5, 7, 8, 18-20, 27, and 30 above does not show use of a TIGR database.

Sohocki et al. shows in the abstract and throughout use of the TIGR Human Gene Index database to search for genes for inherited retinal disorders.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the method of Jurka et al. (1996) as applied to claims 2, 3, 5, 7, 8, 18-20, 27, and 30 above by use of the TIGR Human Gene Index database because Sohocki et al. shows that the database is a useful source of human genes such as genes related to inherited retinal disorders.

14. Applicant's arguments filed 02 February 2005 have been fully considered but they are not persuasive. The applicants state that claim 39 should be allowed, however claim 39 is withdrawn. The applicants state that Jurka uses unknown sequences, however Jurka shows on page 120 the use of known query sequences. The applicants state that the cited references do not show a contig assembly step, however such a step is not claimed. The applicants state that the cited references do not show comparison to a single species database, however the use of such databases are not claimed.

Conclusion

Art Unit: 1631

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

16. Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also

Art Unit: 1631

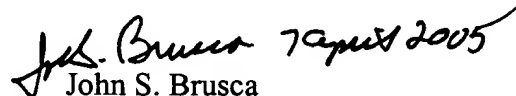
enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center at (800) 786-9199.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John S. Brusca whose telephone number is 571 272-0714. The examiner can normally be reached on M-F 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ardin Marschel, PhD. can be reached on 571 272-0718. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


John S. Brusca
Primary Examiner
Art Unit 1631

jsb